

Appl. No. 10/826,733
Reply to Office Action of November 1, 2007

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An optical recording system including a recording / reproducing optical head having an objective lens and an optical radiation source for emitting light having a wavelength of between 300 nm and 500 nm, and an optical recording medium recorded and reproduced with irradiation of light thereon from said optical head, said irradiation of light being made by the objective lens of which numerical aperture is larger than 1 when irradiated with a light wavelength of substantially 400 nm to record and reproduce recorded pits, said optical recording medium comprising at least a silicon oxide layer and a silicon layer being formed over a substrate in that order, wherein said silicon layer has formed thereon a protective layer of which refractive index is larger than a numerical aperture of said objective lens.

2. (Previously Presented) The optical recording system according to claim 1, wherein said recorded pits are recorded by changing said silicon layer into silicon oxide.

Claims 3. - 4. (Canceled)

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5. (Currently Amended) An optical recording and reproducing method for recording and reproducing data from an optical recording medium with irradiation of light having a wavelength of between 300 nm and 500 nm from an objective lens contained in an optical recording / reproducing head, said light being irradiated through the objective lens having a numerical aperture larger than 1 when irradiated with a light wavelength of substantially 400 nm and ~~using said optical recording medium in which recorded pits are recorded and reproduced~~, wherein said optical recording medium has at least a silicon oxide layer, a silicon layer, and a protective layer formed over a substrate, in that order, ~~said~~ recorded pits being formed by changing said silicon layer into silicon oxide, and

a refractive index of the protective layer is larger than a numerical aperture of said objective lens.

Claims 6. - 7. (Canceled)

8. (Currently Amended) The optical recording system according to claim 1, wherein both said silicon layer and said protective layer have a refractive index larger than a numerical aperture of said objective lens when irradiated with a light wavelength of substantially 400 nm.

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9. (Currently Amended) The optical recording and reproducing method according to claim 5, wherein both said silicon layer and said protective layer have a refractive index larger than a numerical aperture of said objective lens when irradiated with a light wavelength of substantially 400 nm.

Claims 10. – 11. (Canceled)

12. (Currently Amended) The optical recording system according to claim 1, wherein the refractive index of the silicon recording layer is greater than ~~or substantially equal to~~ ~~[[3]]~~ 4.

13. (Currently Amended) The optical recording and reproducing method according to claim 5, wherein the refractive index of the silicon recording layer is greater than ~~or substantially equal to~~ ~~[[3]]~~ 4.

Claims 14. – 15. (Canceled)

16. (Currently Amended) The optical recording system according to claim 1, wherein said objective lens ~~includes~~ is a solid immersion lens (SIL) shaped like a conical surface.

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17. (Currently Amended) The optical recording and reproducing method according to claim 5, wherein said objective lens ~~includes~~ is a solid immersion lens (SIL) shaped like a conical surface.

18. (Currently Amended) The optical recording system according to claim 1, wherein said objective lens includes a solid immersion lens (SIL) having a main component material selected from the group consisting of ZrO_2 , SrTiO_3 , $\text{Bi}_4\text{Ge}_2\text{O}_{12}$, and $\text{Bi}_4\text{Ge}_3\text{O}_{12}$.

19. (Currently Amended) The optical recording and reproducing method according to claim 5, wherein said objective lens includes a solid immersion lens (SIL) having a main component material selected from the group consisting of ZrO_2 , SrTiO_3 , $\text{Bi}_4\text{Ge}_2\text{O}_{12}$, and $\text{Bi}_4\text{Ge}_3\text{O}_{12}$.

Please add the following new claims:

20. (New) The optical recording system according to claim 1, wherein said silicon oxide layer is formed directly on said substrate, said silicon layer is formed directly on said silicon oxide layer, and said protective layer is formed directly on said silicon layer.

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21. (New) The optical recording and reproducing method according to claim 5, wherein said silicon oxide layer is formed directly on said substrate, said silicon layer is formed directly on said silicon oxide layer, and said protective layer is formed directly on said silicon layer.

22. (New) The optical recording system according to claim 1, wherein said objective lens is defined as the single lens of the optical head closest to the optical recording medium.

23. (New) The optical recording and reproducing method according to claim 5, wherein said objective lens is defined as the single lens of the optical head closest to the optical recording medium.